

# THE COWRIES OF THE EAST AFRICAN COASTS

## SUPPLEMENT II

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(PLATE I opposite page 134)

This supplement is based entirely on information supplied to me by various collectors. Since my paper\* was published many persons have started collecting and have shown many of my original remarks concerning distribution and rarity to be completely erroneous. This is to be expected since my remarks were based entirely on the collections at my disposal; I have never collected at the coast myself. Additional comments are listed in the order of my original paper. Authorities for the names have been omitted save in cases where the species is new to the Kenya list. I have kept to the names used in my original paper and not followed recent changes.

I am pleased to say that there is a distinct move towards dispensing with the large number of genera used in recent works. Miss Alison Kay of the University of Hawaii has found the evidence of anatomy to be directly opposed to the recognition of these genera and has proposed the return to *Cypraea* for all the members of the subfamily *Cypraeinae* (see Nature **180**: 1436-1437 (1957)). I have kept the nomenclature used in my original pamphlet merely to avoid confusion but recommend that we should return to using *Cypraea* and, for general collector's use, specific names alone will, of course, suffice.

### *Pustularia globulus*

Kenya: Mombasa (Penn); Kiunga (Sargent). Zanzibar (Knight).

### *Pustularia cicercula lienardi* (Jouss.)

Shell 1.45-2.1 cm. long and 8.5-13 mm. wide, very beaked at both ends, white, tinged brown or pale orange with small, darker brown spots and also numerous, obscurely raised pustules. There is an indentation at the base of the posterior beak marked with brown. The columellar teeth are sometimes interrupted as in *globulus*. The teeth are tinged with brown and under a lens the grooves are slightly roughened. This race is known from the Seychelles, Mauritius, Chagos Archipelago, Aden and the Gulf of Suez. Kenya: Kiunga two, 19 × 11.5 mm. and 14.5 × 8.5 mm. (Penn); Diani Beach, very worn (R. Morgan).

Tanganyika: Tanga, Ras Kazone, 21 × 13 mm. (Childs) (not seen). Mrs. Barton has shown me two specimens collected in Zanzibar which are similar to *P. cicercula* but probably referable to a very large form of *P. globulus* which they resemble in shape. The two specimens are 18 × 11 and 18.5 × 11 mm. respectively; the dorsum is entirely smooth and uniformly orange, unspotted or very faintly spotted above, unspotted below. Further specimens are needed. There may be three *Pustularia* on our coasts.

### *Staphylaea staphylaea*

Preliminary work carried out by Miss A. Kay in Hawaii indicates that the animal of this is very similar, if not identical, with the animal of the next. I have long thought that one variable species was involved with every intermediate between two extreme forms existing.

\* J. E. Afr. Nat. Hist. Soc. **22** (4) (No. 96) (1954)

*Staphylaea limacina*

An entirely pale brown variant of this has been discovered at Watamu (Kenya) by Mrs. Bentley. There are faint dorsal spots and orange-brown ends. The hair lines bordering the teeth are faint. Mr. Edwards states (*in litt.*) that there are two forms of this species with different animals. One has a peach-coloured foot with darker orange mantle and frill and the other a dull mauve foot with blackish mantle and a lilac frill. This needs more investigation—possibly sexual differences or stages of development are involved.

*Staphylaea nucleus*

Kenya: Gazi and Likoni (Sargent). Tanganyika: Tanga, Ras Kazone (Childs). Zanzibar (Knight, Barton).

*Erosaria erosa*

Mr. Penn has collected a form at Shanzu (Kenya) with a blotch on one side of the shell only. Intermediates with *E. nebrites* have been collected in Zanzibar (Knight) and in Kenya at Kiunga (Sargent). Mr. Childs records *E. erosa* as large as 4.8 × 2.6 cm. from Tanga.

*Erosaria marginalis*

This rare species has recently been found in Kenya, thus confirming the original records—Jardini and Diani (Childs); Kiunga (Sargent). There are no local specimens of this species in the collections of the Coryndon Museum and no fresh specimens from anywhere. It is badly needed.

*Erosaria poraria*

Mr. Benton has collected a remarkable specimen of this species at Shanzu (on inner side of outer reef, 12th. Jan. 1955). It is a large and distinct form 2.2 cm. long. The back is very suffused with chestnut and purple and the tiny white spots are not always ocellated; the sides and underneath are purple. This specimen is so different from the small *poraria* from the East that I doubted its specific identity and thought it might be a new species. The late Guy Wilkins, however, informed me that in his opinion the specimen came within the range of variation of *E. poraria*.

*Erosaria lamarckii*

This is by no means as frequent as I implied. Mrs. Barton records it from Zanzibar and states that the animal is orange. Mr. Childs has found a form at Tanga without the dorsal ocellate spots and with less prominent ends. He also gives the maximum size of this species as 4.5 × 2.6 cm. Also from Lamu (Barradell) and Mombasa (Benton).

*Erosaria turdus*

Kenya: Lamu (Childs, Barradell).

*Monetaria annulus*

Mr. Penn has collected a distinctive variant with a very dark orange-brown dorsum at Fort Jesus, Mombasa.

*Monetaria moneta*

Hybrids between this and *M. annulus* have been reported to be frequent but I have not seen any specimens so far. Mr. Childs has found specimens as large as 3.1 × 1.7 cm. at Tanga.

*Erronea onyx*

This species is by no means as rare as I thought. It seems to prefer rather deep water near mangrove swamps. The animal is jet black.

Kenya: Mtongwe side of Port Reitz, Mombasa, five alive (Sargent), abundant (Penn); Tudor Creek (Metcalfe); Ngomeni and Patte Islands (Sargent). Tanganyika: Tanga, Ras Kazone, 5.3 × 3 cm. (Childs). Zanzibar, often abundant (Wiley, Barton, Knight).

*Erronea caurica*

Many Zanzibar specimens seem more elongate than usual and are perhaps referable to race *elongata* (Perry). Mr. Childs records specimens as large as 5.3 × 2.1 cm. from Tanga.

## Olive-mottled Cowry\*

\* The name used by W. Wood 'Index Testaceologicus', sec. ed., 1828.

*Erronea erronea* (Linn.) Fig. 1

Description: Shell ovoid-cylindrical, 2.2 cm. long and 1.15 cm. wide, back very pale bluish-green with numerous small olive-brown spots which run into each other and cause a rather uniform dense mottled effect. In the middle of the back of the particular shell mentioned below (from which the description is taken) is a more solid irregular brown mark made up of a few large spots and mark. The margins are quite unspotted, cream, faintly tinged with olive. The base and rather coarse teeth are similarly coloured. A feature of the specimen to hand is a compressed ridge at the bottom right-hand side of the margin. I have not been able to associate this with any of the rather diffuse subspecies mentioned by the Schilders.

A single specimen of this species was found alive by Mrs. A. H. B. Childs at Mtwara, Southern Province, Tanganyika; it was found under a flat piece of coral on a dead reef at low spring tide, two inches below datum level. The specimen is in Mr. Childs' own collection but has been seen by me. This species is not recorded for East Africa by the Schilders but since they were very careful about accepting records it is possible that there are earlier unconfirmed ones. It is not even recorded from Mauritius by the Schilders but is mentioned from that island in Viader's catalogue.

From above this species could be confused with *Cribraria teres* but a glance at the base will distinguish it because *erronea* has much coarser teeth and the sides are unspotted.

In the key given in my original paper, considering the base of the shell to be white—it certainly cannot be described as coloured—*erronea* will run down to couplet 50 but clearly agrees with none of the species in the vicinity so there should be no difficulty in realising that one is dealing with a species not dealt with in the pamphlet. From the key, *Blasicrura stolidia* (couplet 34) might sound similar but it is a larger species with a more solid median blotch and orange-brown margins, one of which is thickened.

*Palmadusta clandestina*

Kenya: frequent at Mombasa (Sargent, Benton). Tanganyika: Tanga, Ras Kazone, up to 2.3 cm. long (Childs). Zanzibar (Knight, 2.15 cm. long and Barton, 1.6 × 1.05 cm. and 1.7 × 1.0 cm.). One of Mrs. Barton's specimens had the ziczac pattern very much more distinct than usual and irregular due to mantle damage. The species is certainly very much commoner than I indicated originally.

*Palmadusta asellus*

Kenya: Bajun Islands, Kui Island (Sargent); Lamu (Sargent). Zanzibar.

*Palmadusta ziczac*

I have been informed of the following records:

Tanganyika: Tanga (Edwards). Zanzibar (Ostheimer). This species seems to be genuinely rare.

*Palmadusta punctata*

This recently recorded species appears to be not uncommon. Kenya: Likoni (Sargent); Ras Ngomeni (Sargent). Tanganyika: Dar es Salaam (Spry); Tanga, Ras Kazone, 1.35-1.9 cm. × 7.5-9 mm. (Childs). Zanzibar, (Knight, Ostheimer, Barton).

*Palmadusta gracilis*

Kenya: Bajun Islands (Sargent); Ngomeni, 2.1 cm. long (Sargent).

*Palmadusta felina*

This species is not at all common but single specimens turn up fairly often, e.g. Kenya: 10 miles N. of Kilifi, among live coral at low tide (A. Williams); Gedi (Poppleton); Tiwi (Croft). Tanganyika: Tanga, Ras Kazone, up to 2.2 × 1.4 cm. (Childs). Zanzibar (Knight).

*Palmadusta fimbriata*

This species is not at all rare as I stated originally. It also attains a larger size, up to 1.8 × 1.0 cm. Kenya: Mombasa, frequent (Benton, Sargent). Tanganyika: Tanga, Ras Kazone (Childs). Zanzibar (Barton, Knight). (Mr. J. Spry of Dar es Salaam, Tanganyika, collected a peculiar green form of this species. This green pigmentation is not a surface deposit but an integral part of the shell throughout. The animal must have been living in contact with some material

absorbed and then laid down by the mantle or some physiological action caused the mantle to produce a green pigment. The shape of the shell is exactly that of *fimbriata*. Also there are traces of dark colour at the ends beneath and the animal was red.)

*Blasicrura owenii*

An extremely worn specimen,  $1.65 \times 1.1$  cm., from Diani Beach (R. Morgan) tends to confirm the presence of this species in East Africa. Fresh living specimens are still needed for complete confirmation.

*Blasicrura stolidi*

Not many specimens of this have turned up and there is only one perfect specimen in the collections of the Coryndon Museum. Tanganyika: Tanga, Ras Kazone,  $3.1 \times 1.6$  cm. (Childs). Zanzibar (Knight).

*Cribraria teres*

This is not rare. It is very variable in size. Kenya: Malindi (Tweedie); Kui Island (Sargent); Mombasa (Benton). Tanganyika: Tanga, Ras Kazone, said to attain  $4 \times 1.9$  cm. (Childs). Zanzibar, 2.1 cm. long (Knight).

*Cribraria chinensis*

Tanganyika: Tanga, Ras Kazone,  $4.5 \times 2.4$  cm. (Childs). Zanzibar, varies in length from 2.5-4.2 cm. and very variable in colour (Knight). Young shells have thick, creamy white margins with no spots but the characteristic dorsum and traces of orange between at least the columella teeth identify it.

*Cribraria cribraria*

Kenya: Ras Ngomeni and Gazi (Sargent); Shanzu (Penn); Malindi (Chance). Mr. Penn's specimens have small, pale, wine-coloured spots on the left-hand white margin. This upsets my key. Tanganyika: Tanga, Ras Kazone (Childs).

*Luria isabella*

Specimens as large as  $3.7 \times 1.8$  cm. have been found at Tanga by Mr. Childs.

*Callistocypraea testudinaria*

Tanganyika: Dar es Salaam, 10.0 cm. long (Childs). Zanzibar,  $10 \times 4.7$  cm. (Childs; various Zanzibar collectors).

*Talparia argus*

I have had about half a dozen verbal records of this species from Kenya (Malindi area) and Zanzibar. No specimens have been sent to the Museum.

*Talparia talpa*

This is perhaps not so frequent as I originally indicated. Specimens from Tanganyika, Tanga, Ras Kazone collected by Mr. Childs are said to be  $8.3 \times 3.9$  cm., very much larger than any I have seen.

*Mauritia mappa*

I have a verbal record via Mr. J. Tucker that a Miss Bainbridge collected a specimen at Mombasa. I have still seen no local specimens.

*Mauritia scurra*

This species is widely distributed on our coasts and it is surprising that it has not been known for much longer. Kenya: Kiunga (Sargent); Likoni, common (Sargent); Mombasa, outer reef, between layers of dead coral at 2-3' below datum tide (Penn, Benton); Msambeni (Sargent); Kilifi (J. Williams). Tanganyika: Tanga, Ras Kazone, up to  $4.5 \times 2.4$  cm. (Childs). Zanzibar. Mr. Sargent has collected at Ngomeni (Kenya) a variety which matches material from Queensland named var. *indica* Gmelin. It is distinguished from our usual form by its smaller dorsal spots and more cylindrical shape.

*Mauritia arabica*

Sargent records a specimen 8 cm. long from Mombasa and Childs one 8.1 cm. long from Tanga.

*Mauritia histrio*

In Zanzibar 'unhumped' forms very similar to *M. grayana* occur (Knight). A shell  $5.7 \times 4.0$  cm. collected in E. Africa (locality uncertain) by Miss R. Morgan closely resembles *M. depressa* but is probably the form of *histrio* formerly thought distinct and known as *M. maculifera*. Mr. Childs has found specimens of *M. histrio*  $7 \times 4$  cm. at Tanga.

*Mauritia depressa*

Kenya: Tiwi (Penn); without locality,  $3.6 \times 2.7$  cm. (Childs).

*Mauritia mauritiana*

Sargent records one 9.5 cm. long from Mombasa and Childs one 9 cm. long from Tanga.

*Cypræa pantherina*

No specimens have turned up to confirm the E. African record.

*Cypræa vitellus*

A very dark variety with vinaceous tinge below has been collected at Fort Jesus, Mombasa, by Mr. Penn and at Gedi by Mr. Poppleton. Messrs. Rawlins and Sargent have collected some very large specimens at Tangawanda, Patte Island, Kenya, 6.8-7.5 cm. long. Mr. Childs records specimens 5.8-6.3 cm. long from Tanga. These upset my key.

As this paper went to press two further important records were brought to my notice by Mr. Wiley to whom I am most grateful.

*Blasicrura owenii*

Tanganyika, Dar es Salaam, Kendwa Island, seaward side, at low water mark with tide 1.9 below datum, under a stone in company with two *P. punctata*, E. T. Haywood.

This is a new record for Tanganyika. The species appears to be very rare.

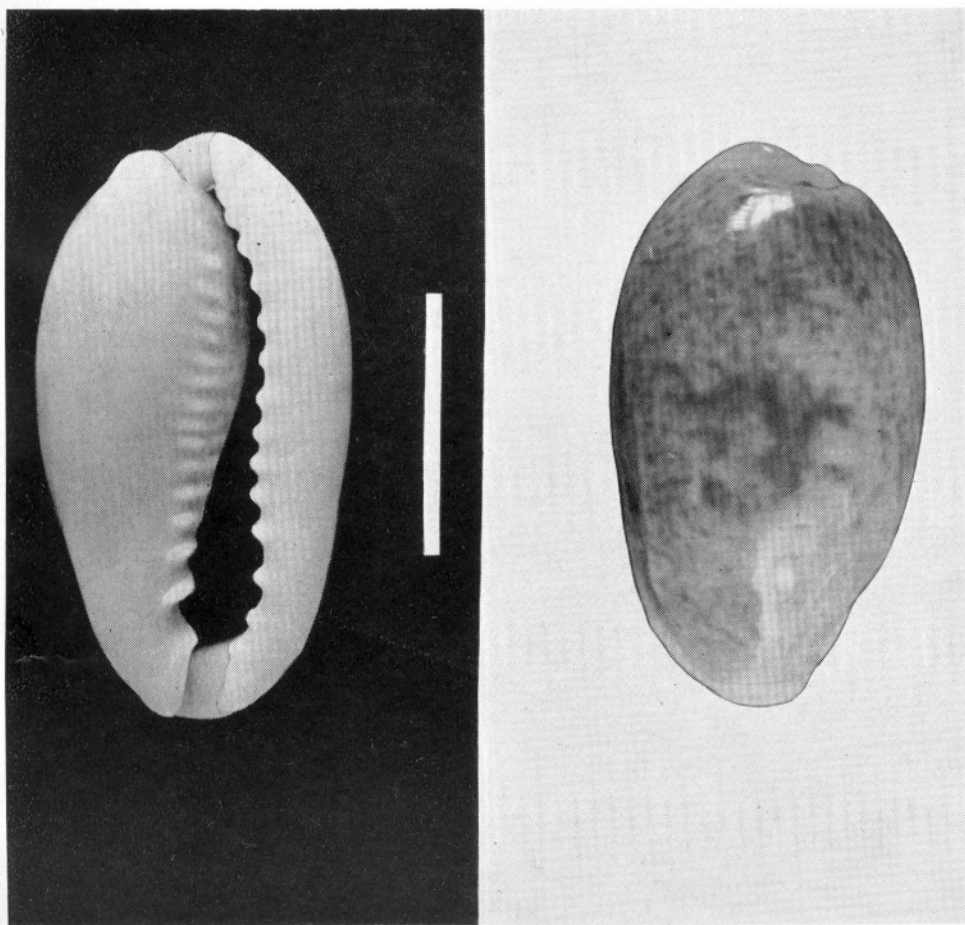
*Cypræovula edentula* Gray

Tanganyika, Dar es Salaam, a 'dead' specimen, E. T. Haywood.

This is a very easily recognised species since it has no teeth on the lips or only obsolescent fine hair like striæ.

This is the first record for East Africa. Schilder records it only from Port Elizabeth to Fish River in South Africa. A record from Tanganyika is therefore extremely surprising and further material should be looked for to confirm that this shell did not reach Dar es Salaam fortuitously.

The number of interested collectors now available is sufficient for really useful biological information to be collated. I would suggest they start card indices with one card per species and collect the following kind of information: (a) Exact habitat preferences with dates of collections; (b) Detailed colour descriptions of the animals; (c) Dates of spawning and descriptions of egg capsules; (d) Rate of growth data—how long a species takes to reach maturity and how long they live. In a small group such as this the mere collection of a fairly complete range of species is not a long job and time should be available for ecological studies. I would be very pleased if the various collectors would contemplate this kind of work. They would certainly find no difficulty in publishing it. I suspect that quite a deal of this information is already available in various collectors' notes.



Upper and lower sides of *Erronea erronea* (L.), Tanganyika, Mtwara, Mrs. A. H. B. Childs. (The white line represents 10 mm.)